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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/312,728	05/14/99	BERLOWITZ P	LAW748

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EXAMINER	
ALEJANDRO,R	
ART UNIT	**PAPER NUMBER**
1745	2

DATE MAILED: 06/29/00

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary	Application No.	Applicant(s)	
	09/312,728	BERLOWITZ ET AL.	
	Examiner	Art Unit	
	Raymond Alejandro	1745	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

1)☐ Responsive to communication(s) filed on *14 May 1999* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-23* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☐ Claim(s) *1-23* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

a)☐ All b)☐ Some * c)☐ None of the CERTIFIED copies of the priority documents have been:

1.☐ received.

2.☐ received in Application No. (Series Code / Serial Number) _____ .

3.☐ received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. & 119(e).

Attachment(s)

15) ☒ Notice of References Cited (PTO-892)
16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
19) ☐ Notice of Informal Patent Application (PTO-152)
20) ☐ Other: .

DETAILED ACTION

Claim Objections

Claims 16-20 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claims 16-20 are directed to a method but they depend on product claims 10, 11 and 13. Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 6 and 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term "Fischer-Tropsch derived liquids" in claims 6 and 17 is unclear because the specification does not set forth if the foregoing is either a trademark name, or a marketing (commercial) name or a proper chemical terminology. If the name is a trademark name or marketing name, the term renders the claims indefinite as wherever a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App.

1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-23 are rejected under 35 U.S.C. 103(a) as being unpatentable over Fuglevand et al 6030718 in view of Lyon 5827496.

The instant claims are drawn to a fuel cell system wherein the alleged inventive concept comprises the use of a source of fuel and water emulsion. Other limitations include the container, the particular reactor, the pre-heater, the fuels, the depressant, the alcohol, the surfactant, the water recovery means. In addition, the method for operating a fuel cell system is intended.

Fuglevand et al disclose a fuel cell power system having a chemical reformer which produces a supply of hydrogen for use by the power system. In this regard, the hydrogen recovery and recycling system would recover or recapture unreacted hydrogen, which has previously passed through the individual fuel cell. This, system

would separate the unreacted hydrogen from other contaminants and return it to the power system. In the alternative, a chemical reformer may be utilized for this purposes, and the unreacted hydrogen would be returned to the chemical reformer where it would again be delivered to the individual fuel cell modules (col 6, lines 6-58). It is also taught the particulars components of the fuel cell system. Also, the source of hydrogen is illustrated as a pressurized container which is received in the enclosure, see Figure 1. However, it is anticipated that other means are employed for supplying a suitable quantity of hydrogen to the hydrogen distribution assembly. In this regard, a chemical reformer or fuel reformer could be utilized and enclosed within or outside of the enclosure and which would, by chemical reaction, produce a suitable quantity of hydrogen. The chemical reformer would be coupled with a supply of hydrogen rich fluid such as natural gas, ammonia, or similar fluids. The chemical reformer would then, by means of a chemical reaction, strip away the hydrogen component of the hydrogen rich fluid for delivery to the hydrogen distribution assembly. The remaining reformer by products would then be exhausted to ambient or would be captured for appropriate disposal or recycling (col 26, lines 19-56).

Fuglevand et al disclose a fuel cell system according to the aforementioned aspects. However, Fuglevand et al do not disclose the fuel and water emulsion.

Lyon discloses improved methods and systems provided for transferring heat in a combustion system. One example of an application with substantial heat transfer problems is the industrial process known as steam reforming in which hydrogen is produced by passing steam and a hydrocarbon through a catalyst (abstract/ col. 2, lines

21-41). Figure 4 illustrate a packed bed reactor system for producing high purity hydrogen for use in fuel cells. It is also taught the use of unmixed combustion to produce hydrogen for fuel cells. A supply provides a flowing stream of steam and a liquid or gaseous hydrocarbon. The hydrocarbon or reducing gas can be natural gas, a reducing gas selected from the group consisting of diesel fuel, jet fuel, **and an emulsion of a hydrocarbon in water or carbon monoxide**. This valve, then, directs the flowing stream into the top of a reactor. Both sections of the reactor contain a mixture of two catalysts. One of the catalysts is a heat receiver which is a carbon dioxide acceptor selected from the group consisting of calcined limestone, calcined dolomite, and thermally decomposed salts of calcium oxide supported on a porous ceramic (col 11, line 20 to col. 12, line 37).

In view of these disclosures, it would have been obvious to one skilled in the art at the time the invention was made to use the emulsion of a hydrocarbon in water of Lyon in the fuel cell system of Fuglevand et al as Lyon teaches that exposing a reducing gas as a water-hydrocarbon emulsion and a gas containing molecular oxygen to an unmixed combustion catalyst to respectively reduce and oxidize the unmixed combustion catalyst provides alternating reduction and oxidation reactions enabling the unmixed combustion catalyst to efficiently release heat to a heat receiver in efficient thermal contact with the unmixed combustion catalyst that is placed in a reactor bed of a combustion system.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following disclosures teach the related subject matter: Cole 6007699, de Bruijin et al 5322617 and Surampudi et al 5599638.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Raymond Alejandro whose telephone number is (703) 306-3326. The examiner can normally be reached from Mon-Fri 8:00 am - 5:30 pm (second friday off).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Maria Nuzzolillo can be reached on (703) 305-3776. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-3599 for regular communications and (703) 305-3599 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

Raymond Alejandro
Examiner
Art Unit 1745